



PATENT

Atty. Docket No.: ASX-056  
(473/66)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPELLANTS: Gottschalk et al.  
SERIAL NO.: 09/701,854 GROUP NO.: 1746  
FILED: February 15, 2001 EXAMINER: Markoff  
TITLE: Method And System For Cleaning Semiconductor  
Elements

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Commissioner for Patents  
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BRIEF ON APPEAL

Sir:

This is an appeal from the final rejection of claims 1-13, 25, and 26 as they were presented by Appellants' Amendment and Response filed on March 12, 2003. A Notice of Appeal for this application was received by the United States Patent and Trademark Office on September 18, 2003.

A two-month extension of time, up to and including January 19, 2003, for filing an Appeal Brief is respectfully requested. A petition for the extension of time and appropriate fee are being submitted concurrently herewith. Also submitted herewith is an Appendix presenting the claims on appeal and Exhibit A presenting evidence of the real party in interest. The Appeal Brief, Appendix, and Exhibit A are submitted in triplicate in accord with 37 C.F.R. § 1.192(a).

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(1) **Real party in interest**

The real party in interest in the above-identified patent application is Applied Science and Technology, Inc. An assignment perfecting Applied Science and Technology's interest in this application was recorded at the U.S. Patent and Trademark Office on September 10, 2001. Copies of the Assignment, the Notice of Recordation of Assignment Document, and the PTO-stamped Recordation Form Cover Sheet are attached hereto as **Exhibit A**.

(2) **Related appeals and interferences**

To the best of the Appellants' knowledge, there are no related appeals and no related interferences.

(3) **Status of claims**

Claims 1-13, 25, and 26 are pending, and claims 14-24 are canceled. The claims on appeal are claims 1-13, 25, and 26, as presented in the Amendment and Response filed on March 12, 2003, and as rejected by the final Office Action mailed from the U.S. Patent and Trademark Office on June 18, 2003.<sup>1</sup> The claims on appeal appear in the Appendix attached to this appeal brief.

(4) **Status of amendments**

No amendments were filed subsequent to the final rejection.

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<sup>1</sup> Citations to the final Office Action mailed from the U.S. Patent and Trademark Office on June 18, 2003 are as follows: Office Action page/paragraph, e.g., Office Action 3/5.

(5) Summary of invention

As defined by appealed claims 1-6, 12, 13, 25, and 26, as amended, Appellants' invention relates to a method for cleaning semiconductor elements, such as silicon wafers, in a tank (13) containing ozonized water. To produce the ozonized water, oxygen is supplied to an ozone generator (3) to generate an ozone/oxygen mixture. The ozone/oxygen mixture is supplied to a contactor (7) to produce ozonized water by mixing the ozone/oxygen mixture with deionized, i.e., high-purity, water. Sufficient CO<sub>2</sub> is added to the ozone/oxygen mixture supplied to the contactor to increase the ozone concentration in the ozonized water delivered to the tank (13). Without addition of sufficient CO<sub>2</sub>, the water delivered to the tank (13) would have a lower concentration of ozone due to decay of ozone during transport of the water to the tank (13). See, e.g., Application, page 3, second and last full paragraphs, and Figures 2-4.<sup>2</sup>

As defined by appealed claims 7-11, as amended, Appellants' invention relates to an apparatus for cleaning semiconductor elements, such as silicon wafers. The apparatus includes a container (13), that receives the semiconductor elements.

The apparatus includes an ozonized-water generating device (1) that is connected to the container (13) via pipes (11). The device (1) includes an ozone generator (3), which generates an ozone/oxygen mixture, and a contactor (7). The contactor (7) receives deionized water, and receives the ozone/oxygen mixture via a connection pipe connected to the ozone generator (3).

The apparatus also includes a CO<sub>2</sub> source. The CO<sub>2</sub> source is connected via a valve (5) to the connection pipe that directs the ozone/oxygen mixture from the ozone generator (3) to the

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<sup>2</sup> Citations to the application refer to the certified English translation filed with the application.

contactor (7). The CO<sub>2</sub> source thus introduces CO<sub>2</sub> to the ozone/oxygen mixture. See, e.g., Application, page 4, last paragraph, and Figure 4.

**(6) Issues**

1. The first issue presented for appeal is whether appealed claims 1-6, 12, 13 and 26, as amended, comply with 35 U.S.C. § 112, first paragraph.

2. The second issue presented for appeal is whether appealed claims 1-6, 12, 13 and 26, as amended, comply with 35 U.S.C. § 112, second paragraph.

3. The third issue presented for appeal is whether appealed claims 1-4, 7, 9-13, 25, and 26 are patentable under 35 U.S.C. §103(a) over U.S. Patent No. 6,080,531 to Carter et al. in view of International Patent Application Publication No. WO 95/02895, European Patent Application Publication No. 497247, and the state of the art allegedly admitted by the applicants in the specification.

4. The fourth issue presented for appeal is whether appealed claims 5, 6, and 8 are patentable under 35 U.S.C. § 103(a) over U.S. Patent No. 6,080,531 to Carter et al. in view of International Patent Application Publication No. WO 95/02895, European Patent Application Publication No. 497247, the state of the art allegedly admitted by the applicants in the specification, and U.S. Patent No. 5,370,846 to Yokomi et al.

5. Although Appellants believe that the above-identified issues correspond to all of the pending rejections, Appellants also appeal any other bases for rejection of the pending claims which were not explicitly stated in the Office Action but which may be regarded as still pending.

(7) Grouping of claims

The claims on appeal 1-13, 25, and 26 do not stand or fall together.

- Claims 1-6, 12, 13, 25, and 26 stand or fall together.
- Claims 7-11 stand or fall together.

Claims 1-6, 12, 13, 25, and 26 recite a method for cleaning semiconductor elements in a tank containing ozonized water. To produce the ozonized water, oxygen is supplied to an ozone generator to generate an ozone/oxygen mixture according to the principle of silent electrical discharge. The ozone/oxygen mixture is supplied to a contactor to produce ozonized water by mixing the ozone/oxygen mixture with deionized, i.e., high-purity, water. Sufficient CO<sub>2</sub> is added to the ozone/oxygen mixture supplied to the contactor to increase the ozone concentration in the ozonized water delivered to the tank. The ozonized water is directed through the tank to clean the semiconductor elements, and the spent ozonized water is removed from the tank.

Claims 7-11 recite an apparatus for cleaning semiconductor elements. The apparatus includes a container that receives the semiconductor elements. The apparatus also includes an ozonized-water generating device that is connected to the container via pipes. The device includes an ozone generator that generates an ozone/oxygen mixture, and a contactor. The contactor receives deionized water, and receives the ozone/oxygen mixture via a connection pipe connected to the ozone generator. The apparatus also includes a CO<sub>2</sub> source. The CO<sub>2</sub> source is connected via a valve to the connection pipe that directs the ozone/oxygen mixture from the ozone generator to the contactor. The CO<sub>2</sub> source thus introduces CO<sub>2</sub> to the ozone/oxygen mixture.

In summary, claims 1-6, 12, 13, 25, and 26 relate to a method for cleaning semiconductor elements, while claims 7-11 relate to an apparatus for cleaning semiconductor elements. Appellants submit that the method of independent claim 1 and claims dependent therefrom may be performed by apparatus other than the apparatus recited in independent claim 7 and claims dependent therefrom. For example, claim 1 recites that the ozone/oxygen mixture is generated according to the principle of silent electrical discharge, a principle that is not necessarily employed by the ozone generator that is an element of the apparatus recited in claim 7. Therefore, Appellants submit that the method claims and the apparatus claims of the instant Application do not stand or fall together. Further reasons why the two claim groups are separately patentable are set forth in Section (8) below where their patentability against the prior art is discussed separately.

#### **(8) Appellants' Argument**

The following argument addresses the issues presented for appeal.

##### ***8.1. Claims 1-6, 12, 13, and 26 comply with 35 U.S.C. § 112, 1<sup>st</sup> paragraph.***

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Claim 1, as amended, and claims 2-6, 12, 13, and 26, which depend directly or indirectly from claim 1, comply with 35 U.S.C. § 112, first paragraph, because the amendment to appealed claim 1 did not introduce new matter.<sup>3</sup> The following reasons support this conclusion.

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<sup>3</sup> Compare Eiselstein v. Frank, 52 F.3d 1035, 1039 (Fed Cir. 1995) (stating that "[t]he test [for a rejection under § 112, first paragraph, of later-added claims] is whether the disclosure of the application relied upon reasonably conveys to a person skilled in the art that the inventor had possession of the claimed subject matter at

The Office Action incorrectly asserts that "[t]he concept of increasing the concentration of ozone by adding CO<sub>2</sub> has not been recited by the original disclosure." See Office Action, 2/2 (referring to the limitation added to claim 1 via the Amendment filed on March 12, 2003, namely, the limitation of adding sufficient CO<sub>2</sub> to the ozone/oxygen mixture supplied to the contactor to increase an ozone concentration in the ozonized deionized water delivered to the tank.) This limitation, however, is explicitly supported by the specification and figures as originally filed.<sup>4</sup>

In contrast to the incorrect assertion, the application explicitly discloses that addition of CO<sub>2</sub> to an ozone/oxygen mixture supplied to a contactor can increase an ozone concentration in water delivered to a tank; the application includes the following descriptions.

According to the invention, CO<sub>2</sub> was added to the ozone/oxygen mixture generated by the ozone generator. By adding CO<sub>2</sub> to the DI water, the decomposition rate [of ozone in the DI water] was able to be reduced... See Application, page 3, lines 7-9.

It can be detected from Fig. 3 that, with a dosage of less than 1% CO<sub>2</sub>, the system according to the invention could already deliver a threefold ozone concentration in comparison with the DI water which has no CO<sub>2</sub> added.

See Application, page 3, lines 19-21, and Figure 3.

Moreover, Figures 2 and 3 each explicitly disclose an increase in ozone concentration in ozonated water to which CO<sub>2</sub>

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the time of the [filing of the application]... [The] application need not contain precisely the same words as are found in [the claims]."

<sup>4</sup> "[N]ewly added claim limitations must be supported in the specification through express, implicit, or inherent disclosure." See MPEP § 2163 I.B., page 2100-157 (8<sup>th</sup> ed., August, 2001).

has been added relative to an ozone concentration in ozonated water without the addition of CO<sub>2</sub>. See Application, Figures 2 and 3, and page 3, lines 11-21 (describing how the reduction of ozone concentration due to ozone decomposition for the Condition 2 example of Figure 2, obtained with CO<sub>2</sub> supplement, was reduced by almost a factor of three in comparison to the Condition 1 example, which was obtained without addition of CO<sub>2</sub>.)

For the above reasons, the Application as filed discloses that adding sufficient CO<sub>2</sub> to the ozone/oxygen mixture supplied to a contactor can increase an ozone concentration in ozonized water delivered from the contactor to a tank by reducing the rate of ozone decomposition in the ozonized water as it travels from the contactor to the tank. Therefore, Appellants respectfully submit that the amendment to claim 1 did not introduce new matter, and therefore that claim 1, as amended, is patentable under 35 U.S.C. § 112, first paragraph.<sup>5</sup>

The Office Action also rejected claims 2-6, 12, 13, and 26, under 35 U.S.C. § 112, first paragraph, as being dependent on rejected claim 1. Because claim 1, as amended, complies with 35 U.S.C. § 112, first paragraph, Appellants respectfully submit that claims 2-6, 12, 13, and 26, also comply with 35 U.S.C. § 112, first paragraph. For all the above reasons, Appellants respectfully request reversal of the rejection of claims 1-6, 12, 13, and 26, under 35 U.S.C. § 112, first paragraph.

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<sup>5</sup> Compare All Dental, 309 F.3d at 779 (finding that added claim language not explicitly disclosed in the original application did not introduce new matter because, "while the contested language is not a model of clarity, it is also simple and intelligible, capable of being understood in the context of the patent specification. It is thus reasonably clear what the invention is and that the patent specification convey that meaning").



**8.2. Claims 1-6, 12, 13, and 26 comply with 35 U.S.C. 112, 2<sup>nd</sup> paragraph.**

Claim 1, as amended, and claims 2-6, 12, 13, and 26, which depend directly or indirectly from claim 1, comply with 35 U.S.C. § 112, second paragraph.<sup>6</sup> This conclusion is supported by the following reasons.

The Office Action incorrectly asserts that claim 1, as amended, "[is] indefinite because it is not clear how can introduction of CO<sub>2</sub> increase the concentration of ozone." See Office Action, 2/2. As described above with respect to the rejection under § 112, first paragraph, the Application discloses that the ozone concentration in ozonized water delivered from a contactor to a tank can be increased by adding sufficient CO<sub>2</sub> to an ozone/oxygen mixture supplied to the contactor because the rate of ozone decomposition in the water is then reduced as the water travels from the contactor to the tank.

Moreover, claim 1 is definite because the concentration of ozone in the delivered water can be increased in comparison to the ozone concentration that the delivered water would have if no CO<sub>2</sub> is added to the ozone/oxygen mixture supplied to the contactor. Therefore, Appellants respectfully submit that claim 1, as amended, complies with 35 U.S.C. § 112, second paragraph, because it is clear that adding sufficient CO<sub>2</sub> to the ozone/oxygen mixture supplied to the contactor can increase an

<sup>6</sup> See, e.g., Morton International, Inc. v. Cardinal Chemical Co., 5 F.3d 1464 (Fed Cir. 1991) (stating that a determination of "[w]hether a claim is invalid for indefiniteness requires a determination whether those skilled in the art would understand what is claimed when the claim is read in light of the specification." See, also, Miles Laboratories, Inc. v. Shandon Inc., 997 F.2d 870 (Fed Cir. 1993) (stating that "[i]f the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, § 112 demands no more.")

ozone concentration in the ozonized water delivered to a tank, as recited by claim 1.

The Office Action also asserted that claim 2 "is indefinite [also] because it is not clear what is meant by the requirement to recirculate the spent ozonized water with fresh ozonized water. See Office Action 3/4 (asking "[h]ow can the fresh water be recirculated?") This assertion is incorrect because claim 2, which depends from claim 1, includes the clear limitation that a portion of the spent water is recirculated, i.e., added, to the fresh water from the contactor. See claim 1 (reciting that the limitation of filtering at least part of the spent ozonized water, and re-circulating the filtered spent ozonized water with fresh ozonized deionized water produced by the contactor); see, also, Application, Figure 4 (illustrating a filter and cleaning unit (16) and a recirculation pipe (17) that permit spent water from a discharge pipe (15) to be filtered and added to fresh ozonized water in the pipeline (11)); see, also, Application, page 5, third paragraph (describing, with respect to the embodiment of Figure 4, that "a part of the spent water can be returned via the recirculation pipe 17.") Thus, claim 2 clearly recites that at least a part of the spent ozonized water is recirculated after filtering by adding it to the fresh ozonized water. Therefore, claim 2 is clear both on its face and in light of the specification.

The Office Action also rejected claims 2-6, 12, 13, and 26, under 35 U.S.C. § 112, second paragraph, as being dependent on rejected claim 1. Because claim 1, as amended, complies with 35 U.S.C. § 112, second paragraph, Appellants respectfully submit that claims 2-6, 12, 13, and 26, also comply with 35 U.S.C. § 112, first paragraph. For all the above reasons, Appellants

respectfully request reversal of the rejection of claims 1-6, 12, 13, and 26, under 35 U.S.C. § 112, second paragraph.

**8.3. Claims 1-4, 7, 9-13, and 25-26 are patentable under 35 U.S.C. § 103(a) over U.S. Patent No. 6,080,531 to Carter et al. in view of International Patent Application Pub. No. WO 95/02895, European Patent Application Pub. No. 497247 and the state of the art allegedly admitted by the applicants.**

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Independent claims 1 and 7, and dependent claims 2-4, 9-13, 25, and 26, which depend directly or indirectly from claim 1 or claim 7, are patentable under 35 U.S.C. § 103(a) over U.S. Patent No. 6,080,531 to Carter et al. ("Carter") in view of International Patent Application Publication No. WO 95/02895 ("WO 95/02895"), European Patent Application Publication No. 497247 ("EP 497247"), and the state of the art allegedly admitted by the applicants in the specification. Reasons in support of this conclusion are set forth separately for claims 1-4, 12, 13, and 25-26, and for claims 7 and 9-11.

**8.3.1 Claims 1-4, 12, 13, and 25-26**

Independent claim 1, as amended, recites a method for cleaning semiconductor elements with ozonized water in a tank. For the following reasons, Carter alone does not teach or suggest adding sufficient CO<sub>2</sub> to an ozone/oxygen mixture supplied to a contactor to increase an ozone concentration in the ozonized water delivered to a tank, as recited by independent claim 1, as amended.

In contrast to the limitations recited by claim 1, Carter teaches addition of CO<sub>2</sub> to ozonized water (133) by a process chamber (128) after the ozonized water (133) has been delivered from an ozonized water generator to the process chamber (128). See, e.g., Carter, Figures 2 and 4, and column 6, lines 13-15.

In particular, Carter teaches that CO<sub>2</sub>-related additives are delivered from a canister (116) to the ozonized water (133) after the process chamber (128) receives the ozonized water (133) from, for example, a contactor-based apparatus (200). See Carter, Figures 2-4.

Moreover, the Office Action overstates the teachings of Carter by asserting that Carter teaches "a method and apparatus for cleaning semiconductor devices with ozonated water in which CO<sub>2</sub> is added to stabilize ozone." See Office Action, 4/1. As described above, Carter provides no disclosure regarding addition of CO<sub>2</sub> to ozonated water to reduce the decay of ozone during transport of the ozonated water to a process tool; rather, Carter teaches that ozone decay can be caused by interaction of ozone with substrate materials in a process chamber. See, e.g., Carter, column 4, lines 56 (stating that, during cleaning of a substrate, "metal lines appear to catalyze the reaction [that destroys] ozone."). Since Carter is directed at the problem of an ozone decay process that occurs after delivery of ozonized water to a substrate, Carter does not suggest stabilizing ozone during transport from a contactor to a process chamber. See, e.g., Carter, column 4, lines 56.

WO 95/02895, EP 497247, and the allegedly admitted state of the art, each alone, also do not teach, suggest, or motivate a method for cleaning semiconductor elements in a tank that includes adding sufficient CO<sub>2</sub> to an ozone/oxygen mixture supplied to a contactor to increase an ozone concentration in ozonized water delivered to the tank, as recited by claim 1, as amended. Therefore, Carter, WO 95/02895, EP 497247, and the allegedly admitted state of the art, in any reasonable combination, do not teach, suggest, or motivate a method for cleaning semiconductor elements in a tank that includes adding

sufficient CO<sub>2</sub> to an ozone/oxygen mixture supplied to a contactor to increase an ozone concentration in ozonized water delivered to the tank, as recited by claim 1, as amended.

For the above reasons, claim 1, as amended, is patentable under 35 U.S.C. § 103(a) over the cited references. Because claim 1, as amended, is patentable under 35 U.S.C. § 103(a) over the cited references, claims 2-6, 12, 13, and 26, which depend directly or indirectly from claim 1, are also patentable under 35 U.S.C. § 103(a) over the cited references. Therefore, Appellants respectfully request reversal of the rejection of claims 1-6, 12, 13, and 26, under 35 U.S.C. § 103(a).

#### **8.3.2 Claims 7 and 9-11**

Amended independent claim 7 recites an apparatus for cleaning semiconductor elements. The apparatus includes a device for generating ozonized water; the device includes an ozone generator that generates an ozone/oxygen mixture, and a contactor that is connected by a connection pipe to the ozone generator. The apparatus also includes a CO<sub>2</sub> source attached to the connection pipe to introduce CO<sub>2</sub> to the ozone/oxygen mixture directed from the ozone generator to the contactor.

In contrast to the limitations recited by claim 7, Carter teaches that CO<sub>2</sub>-related additives are delivered from a canister (116) to ozonized water (133) at the site of use of the ozonized water, i.e., a process chamber (128); the additives are added to the ozonized water (133) where, as taught by Carter, they are needed due to ozone loss caused by sample interaction, i.e., at the process chamber (128). See Carter, Figures 2-4. In contrast, the apparatus recited by claim 7 has a CO<sub>2</sub> source attached to an ozone/oxygen gas line that supplies a contactor.

As described above with respect to claim 1, the Office Action overstates the teachings of Carter by asserting that Carter teaches "a method and apparatus for cleaning semiconductor devices with ozonated water in which CO<sub>2</sub> is added to stabilize ozone." See Office Action, 4/1. Since Carter is directed at the problem of an ozone decay process that occurs after delivery of ozonized water to a substrate, Carter does not suggest an apparatus that can stabilize ozone during transport from a contactor to a process chamber by having a CO<sub>2</sub> supply attached to an oxygen/ozone gas line connected to a contactor.

WO 95/02895, EP 497247, and the allegedly admitted state of the art, each alone, also do not teach, suggest, or motivate an apparatus that includes a CO<sub>2</sub> source connected to a connection pipe to direct CO<sub>2</sub> into an ozone/oxygen mixture delivered from an ozone generator to a contactor, as recited by claim 7, as amended. Therefore, Carter, WO 95/02895, EP 497247, and the allegedly admitted state of the art, each alone or in any reasonable combination, do not teach, suggest, or motivate an apparatus that includes a CO<sub>2</sub> source connected to a connection pipe to direct CO<sub>2</sub> into an ozone/oxygen mixture delivered from an ozone generator to a contactor.

Therefore, claim 7 is patentable under 35 U.S.C. § 103(a) over the cited references. Because claim 7, as amended, is patentable under 35 U.S.C. § 103(a) over the cited references, claims 9-11, which depend directly or indirectly from claim 7, are also patentable under 35 U.S.C. § 103(a) over the cited references. Therefore, Appellants respectfully request reversal of the rejection of claims 7 and 9-11, under 35 U.S.C. § 103(a).

**8.4. Claims 5, 6, and 8 are patentable under 35 U.S.C. § 103(a) over Carter in view of WO 95/02895, EP 497247, the allegedly admitted state of the art, and U.S. Patent No. 5,370,846 to Yokomi et al.**

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Dependent claims 5, 6, and 8, which depend directly or indirectly from claim 1 or claim 7, are patentable under 35 U.S.C. § 103(a) over Carter in view of WO 95/02895, EP 497247, the state of the art allegedly admitted by the applicants in the specification, and U.S. Patent No. 5,370,846 to Yokomi et al. ("Yokomi").<sup>7</sup> Reasons in support of this conclusion are set forth separately for claims 5 and 6, and for claim 8.

**8.4.1 Claims 5 and 6**

As described above, claim 1 is patentable under 35 U.S.C. § 103(a) over Carter in view of WO 95/02895, EP 497247, and the allegedly admitted state of the art. Therefore, claims 5 and 6, which depend either directly or indirectly from claim 1, are patentable under 35 U.S.C. § 103(a) over Carter in view of WO 95/02895, EP 497247 and the allegedly admitted state of the art.

Yokomi alone does not teach or suggest adding sufficient CO<sub>2</sub> to an ozone/oxygen mixture supplied to a contactor to increase an ozone concentration in ozonized water delivered to a tank, as recited by each of claims 5 and 6. Rather, Yokomi is directed to the problem of an unstable ozone concentration in the ozone/oxygen mixture produced by an ozone gas generator of the silent electric discharge type. See, e.g., Yokomi, column 2, lines 33-37, and Figure 1. Yokomi merely teaches that CO<sub>2</sub> can be added to oxygen supplied to an ozone gas generator to limit or

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<sup>7</sup> See, e.g., MPEP § 2143.03 (8<sup>th</sup> ed., August, 2001) (noting that a prima facie case of obviousness in part requires that the prior art references teach or suggest all the claim limitations).

prevent a decline in ozone concentration in the gas produced by the ozone gas generator.

Therefore, Carter, WO 95/02895, EP 497247, the allegedly admitted state of the art, and Yokomi, in any reasonable combination, do not teach, suggest, or motivate a method for cleaning semiconductor elements in a tank that includes adding sufficient CO<sub>2</sub> to an ozone/oxygen mixture supplied to a contactor to increase an ozone concentration in ozonized water delivered to the tank, as recited by both claim 5 and claim 6. Consequently, claims 5 and 6 are patentable under 35 U.S.C. § 103(a) over Carter in view of WO 95/02895, EP 497247, the allegedly admitted state of the art and Yokomi because the cited references do not teach, suggest, or motivate all of the features of either claim 5 or claim 6, as amended. Appellants respectfully request reversal of the rejection of claims 5 and 6 under 35 U.S.C. § 103(a).

#### **8.4.2 Claim 8**

As described above, claim 7 is patentable under 35 U.S.C. § 103(a) over Carter in view of WO 95/02895, EP 497247, and the allegedly admitted state of the art. Therefore, claim 8, which depends directly from claim 7, is patentable under 35 U.S.C. § 103(a) over Carter in view of WO 95/02895, EP 497247 and the allegedly admitted state of the art.

Yokomi alone does not teach or suggest a CO<sub>2</sub> source connected to a connection pipe that directs an ozone/oxygen mixture from an ozone generator to a contactor to introduce CO<sub>2</sub> to the ozone/oxygen mixture, as recited by claim 8. Rather, as described above with respect to claims 5 and 6, Yokomi merely teaches that CO<sub>2</sub> can be added to oxygen supplied to an ozone gas generator to limit or prevent a decline in ozone concentration



in the gas produced by the ozone gas generator. To accomplish this, Yokomi teaches that a source of CO<sub>2</sub> may be connected to an oxygen feeding pipe (6) that in turn supplies oxygen to an ozone generator (5). See, e.g., Yokomi, column 3, lines 51-57, Figure 1.

Consequently, claim 8 is patentable under 35 U.S.C. § 103(a) over Carter in view of WO 95/02895, EP 497247, the allegedly admitted state of the art, and Yokomi because the cited references do not teach, suggest, or motivate all of the features of claim 8, as amended. Appellants respectfully request reversal of the rejection of claim 8, under 35 U.S.C. § 103(a).

**8.5 The claimed invention is patentable under any other possible bases for rejection.**

Appellants believe that the foregoing arguments address each of the pending rejections of the pending claims. In particular, the present Brief addresses each of the rejections made final in the Office Action. Accordingly, Appellants submit that the present application meets all requirements for patentability.

Conclusion

For the reasons given above, it is respectfully requested the rejections be reversed and the application be passed to issue with claims 1-13, 25, and 26 as presented in the Appendix attached hereto.

A Transmittal and Fee for the filing of this Brief on Appeal, as well as a petition for a two-month extension of time and the appropriate fee, are submitted herewith. Appellants believe that the present filing necessitates no other fees. However, if any additional fees are due, the Commissioner is hereby authorized to charge any such fees to Attorney's Deposit Account No. 20-0531.

Respectfully submitted,

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